

ABSTRACT OF THE DISCLOSURE

A method for underfilling and encapsulating flip-chip configured semiconductor devices mounted on a carrier substrate using stereolithography (STL) to form, in situ, at least semisolid dam structures of photopolymeric material about the devices to entrap liquid, unpolymerized resin between the devices and substrate. Prior to the STL process, the carrier substrate and mounted devices are immersed in the liquid polymeric resin, optionally with vibratory energy, to purge contaminants from between the device and substrate, and to fill spaces between the semiconductor devices and carrier substrate with the liquid resin.